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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/681,674	05/18/2001	Yoshifumi Natsuyama	JP920000096US1	3666

7590 07/13/2005  
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EXAMINER

RUDE, TIMOTHY L

ART UNIT	PAPER NUMBER
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2883

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/681,674

Applicant(s)

NATSUYAMA, YOSHIFUMI

Examiner

Timothy L. Rude

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-16 is/are pending in the application.
- 4a) Of the above claim(s) 1-3, 6 and 9-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4, 5 and 7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 29 April 2005 has been entered.

### ***Claims***

Claims 4 and 6 are amended.

### ***Claim Objections***

Objection to claim 4 is withdrawn.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recitation "resulting from a difference in coefficients of linear expansion between the glass substrates" is not consistent with the Specification. Please note that Specification, Page 7, Para [0035], cites a difference in coefficients of linear expansion between the circuit board and the glass substrates. Based upon the Specification, examiner considers the coefficient of linear expansion of the glass substrates to be one value and the coefficient of linear expansion of the circuit board to be a different value.

It is respectfully pointed out that Figure 6 clearly shows anchor holes, 16, for anchor pins, 24, that are some distance away from glass substrate, 42. Examiner cannot find any teaching as to how anchor holes and anchor pins can be remotely located from glass substrate, 42, and yet be in a path region of substantial propagation of stress therefrom. Examiner believes Specification, Page 7, Para [0035] to be a correct teaching.

Examiner anticipates the Applicant may correct the claim language, so for examination purposes, the present claim language is considered rejected under 35 U.S.C. 112, second paragraph, and the anticipated claim language shall be considered to mean a difference in coefficients of linear expansion between the circuit board and the glass substrates wherein the coefficient of linear expansion of the glass substrates is one value and the coefficient of linear expansion of the circuit board is a different value.

Examiner suggests transposing the reference to the circuit board and the glass substrates to avoid indefiniteness, e.g., - - ... a difference in coefficients of linear

expansion between the circuit board and the glass substrates of the liquid crystal display panel and wherein at least one pair ... - - .

Rejections consistent with the anticipated claim language appear below.

*304  
7-11-05*  
Claim 6 <sup>would be</sup> ~~is~~ rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. *if it were examined on the merits.*

*304  
7-11-05*  
As to claim 6, the recitation "... tape carrier package and said circuit board each have more than two additional anchor holes located on a second side adjacent to said first side ..." is unclear. Please note that each tape carrier, 10 [see Figures 3-8], has only two anchor holes [specification [0048]].

Claims 4-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 4, the recitation "... tape carrier package and said circuit board each have more than two anchor holes located on a first side ..." is unclear. Please note that each tape carrier, 10 [see Figures 3-8], has only two anchor holes, and Applicant did not originally present any claim to more than two anchor holes in any tape carrier package.

As to claims 5-7, they are directly or indirectly dependent upon claim 4.

Examiner anticipates amendment of "more than two anchor holes" to - - two anchor holes - - in order to provide Applicant with an office action on the merits consistent with Applicant's arguments, prior amendments, drawings, and originally filed specification [MPEP 706.07(a)]. For examination purposes, "more than two anchor holes" will be considered to be - - two anchor holes - - (per tape carrier).

### ***Election/Restrictions***

Newly amended claim 6 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claim 6 is drawn to a tape carrier with more than two anchor holes on a second side adjacent to said first side.

Newly amended base claim 4 narrows previously generic claims to create a new species A, drawn to a device comprising a tape carrier package with more than two anchor holes located on a first side and no limitation as to additional holes on any other sides.

Newly amended dependent claim 6 narrows previously generic claims to create a new species B, drawn to a device comprising a tape carrier package with more than two anchor holes located on a first side and more than two additional anchor holes on a second side adjacent to said first side.

Applicant may add only one species to previously generic claims [MPEP 818.02(b)].

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 6 is withdrawn from consideration as being directed to a non-elected species B. See 37 CFR 1.142(b) and MPEP § 821.03.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

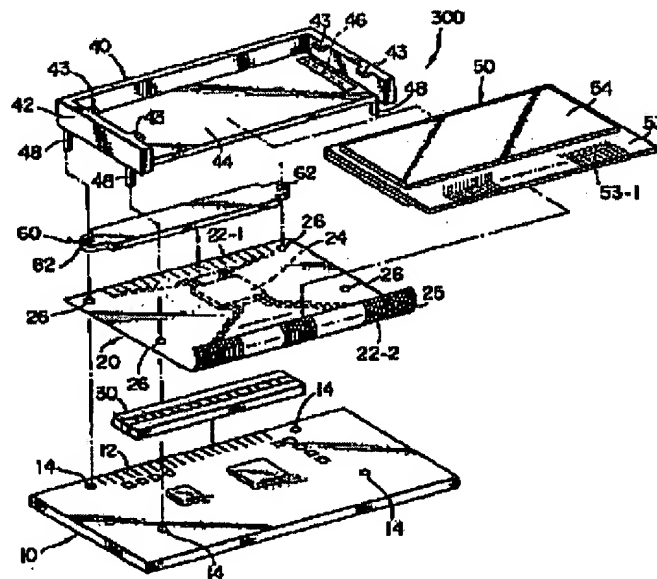
2. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muramatsu USPAT 6,191,838 B1 in view of Glaser et al (Glaser) USPAT 4,550,039.

As to claim 4, Muramatsu discloses in his third embodiment, [Figures 11 and 12, col. 10 line 66 through col. 13, line 6] a liquid crystal display panel comprising: a pair of glass substrates facing each other, each having electrodes for applying voltage to a liquid crystal material on a facing surface (typical); a circuit board, 10, for supplying said voltage; and a liquid crystal driver tape carrier package, [20, col. 11, lines 7-9 and col. 7, lines 1-3] for connecting said electrodes of said glass substrates to said circuit board and mounting at least one liquid crystal driver chip [col. 11, lines 7-9 and col. 7, lines 4-13], wherein said liquid crystal driver tape carrier package and said circuit board each

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have more than two anchor holes, [four of 26 and 14 respectively], and anchor pins, 48, are inserted into said anchor holes, whereby said liquid crystal tape carrier package is fixed to said circuit board [col. 11, lines 45-48], wherein said anchor holes are located in a path region of substantial propagation of stress resulting from a difference in coefficients of linear expansion between the circuit board and the glass substrates of the liquid crystal display panel, and more than two anchor pins, 48, are inserted, one pin into each of said more than two anchor holes.

Figure 11



Muramatsu also discloses the liquid crystal display device wherein a pair of said anchor holes, 26, is located with said liquid crystal driver chip, 24, between [diagonally per Figure 11].



Muramatsu does not explicitly disclose a display wherein said liquid crystal driver tape carrier package is soldered to said circuit board via said pins.

Glaser teaches the use of soldering conductive pins [col. 3, lines 44-49 and col. 3, line 67 through col. 4, line 11] to make electrical connections with more efficient routing of lead wires [col. 1, line 67 through col. 2, line 5], provide a more rigid mount, and reduce the cost of manufacturing.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Muramatsu with the soldering of conductive pins of Glaser to make electrical connections with more efficient routing of lead wires, provide a more rigid mount, and reduce the cost of manufacturing.

As to claim 5, Muramatsu discloses the liquid crystal display device further comprising a light guide, [44 Applicant's frame], for allowing said anchor pins to stand on a surface holding said pair of glass substrates, wherein said liquid crystal driver tape carrier package and said circuit board are fixed to said frame.

3. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Muramatsu in view of Glaser, as applied to claims 4-5 above, and further in view of Yamagishi et al (Yamagishi) USPAT 5,771,158.

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As to claim 7, Muramatsu in view of Glaser discloses the liquid crystal display device according to claim 5 comprising soldered conductive anchor pins.

Muramatsu in view of Glaser does not explicitly disclose a grounding conductor formed on said frame, and said conductive anchor pins are conductively connected to said grounding conductor.

Yamagishi teaches the use of a ground plane to reduce radiation emissions and avoid harmful interference with other electric appliances [col. 4, lines 44-65 and col. 3, lines 30-40].

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of Muramatsu in view of Glaser with the ground plane of Yamagishi to reduce radiation emissions and avoid harmful interference with other electric appliances.

***Response to Arguments***

4. Applicant's arguments filed on 29 April 2005 have been fully considered but they are not persuasive.

Applicant's ONLY arguments are as follows:

(1) Rejection of claim 4 under 35 U.S.C. 112, second paragraph, is overcome by the amendment to claim 4.

(2) The pins of Muramatsu are not located in a path region of substantial propagation of stress resulting from a difference in coefficients of linear expansion between said glass substrates and said circuit board. The combination does not teach the same structure.

(3) Muramatsu has other structure that is not planar and would cause stress.

(4) Glasser discloses the use of non-conductive insulating materials around the connector pins which would not permit the claimed soldering.

Examiner's responses to Applicant's ONLY arguments are as follows:

(1) It is respectfully pointed out that, examiner maintains rejection of claim 4 under 35 U.S.C. 112, second paragraph, per rationale above.

(2) It is respectfully pointed out that the pins of Applicants claimed invention do not penetrate the glass substrates. They merely penetrate the tape carrier package, circuit board, and optionally a frame. Muramatsu teaches a configuration where pins penetrate such items, and the glass substrates are constrained by other means whereby, according to Applicant's enabling disclosure, the pins would be located in a

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path region of substantial propagation of stress resulting from a difference in coefficients of linear expansion between said glass substrates and said circuit board. This is not improper hindsight. Applicant's enabling disclosure confirms that the structure of Muramatsu in view of Glaser would have the claimed properties since the pins are located astride the circuit lines of the tape carrier package as claimed. Applicant's claims as presently written and broadly interpreted are met by the applied prior art.

(3) It is respectfully pointed out that Applicant's claims are in comprising format and therefor do not preclude the additional structure of the applied prior art. Also, Applicant does not presently claim planar structure. Please note that Applicant's anchor pins do not penetrate the substrates; the mere fact that there is a bend in the tape carrier [typically what tape carriers are used for] would not decouple or create in plane stresses.

(4) It is respectfully pointed out that Glaser teaches the motivation of simplifying wiring which would entail circuit design changes that one of ordinary skill in the art would obviously know to solder to the pins. Also, Yamagishi teaches the use of a ground plane to reduce radiation emissions and avoid harmful interference with other electric appliances. Yamagishi as applied, would also provide the metal to which the pins would be soldered with motivation to combine.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy L. Rude whose telephone number is (571) 272-2301. The examiner can normally be reached on Mon-Thurs.

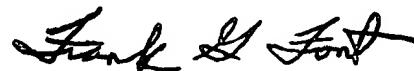
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



tlr

Timothy L Rude  
Examiner  
Art Unit 2883



Frank G. Font  
Supervisory Patent Examiner  
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